REMARKS

Claims 1-38 are pending. Claims 23-38 have been withdrawn from consideration. Claim 14 has been amended. No new matter was added. Applicant request rejoinder of method claims of the same or equal scope as any allowed product claim under the rejoinder procedure set forth in MPEP § 821.04.

I. The § 112 Rejection Should Be Withdrawn

Claims 14-21 were rejected under § 112, ¶2. This rejection is respectfully traversed. Claim 14 has been amended to recite "enclosures" as suggested by the Office Action. Applicant submits that the scope of claim 14 has not been changed by this amendment. Furthermore, the term "generally-vertically-aligned" is clearly defined in the specification of the present application. Specifically, paragraph [0018] of the specification states that "generally-vertically-aligned" means vertically aligned plus or minus twenty degrees. Thus, one of ordinary skill in the art can clearly ascertain the scope of claim 14, as required by §112, ¶2 and MPEP § 2173.05(b)D. Applicants submit that claim 14 complies with §112, ¶2.

II. The § 103(a) Rejections Should Be Withdrawn

Claims 1, 7-11, 14 and 19-21 were rejected under §103(a) as being unpatentable over Laskaris (US Patent 6,198,371) in view of Kim (US Patent 6,336,794). This rejection is respectfully traversed for the following reasons. First, Laskaris teaches away from a vibration isolation system, by explicitly teaching that the MRI system must be rigidly mounted to the floor to reduce vibration. Second, Kim does not provide motivation to add a vibration isolation system to an MRI magnet assembly. Third, Kim is non-analogous art because it does not solve the same problem as the claimed invention.

A. Laskaris Teaches Away From a Vibration Isolation System

As correctly noted by the Office Action, Laskaris does not teach a vibration isolation system. In fact, Laskaris teaches to rigidly mount the magnet assembly 10 to the floor 42 by using a rigid support skirt 20 (see Figures 1 and 2 and col. 4, lines 31-46 of Laskaris). The skirt 20 contains a rigid cylindrical wall 50 that is bolted to the floor 42. The stated advantage from using the skirt of Laskaris is that it "stiffens the support of the magnet" to reduce vibration. (See column 2, lines 55-65 of Laskaris). Thus, Laskaris actually teaches away from using a vibration isolation system with the MRI magnet assembly because Laskaris solves the vibration problem by making the MRI mount to the floor more rigid than before, rather than less rigid. A prior art reference cannot be used in a §103(a) rejection where the prior art reference teaches away from the claimed invention. MPEP § 2145(X)D.

One of ordinary skill in the art would not be motivated to non-rigidly mount an MRI system to the floor from the teaching of Laskaris because one of ordinary skill in the art understands that MRI measurements are very position sensitive. Thus, one of ordinary skill in the art would understand that a non-rigid MRI mounting of the MRI system of Laskaris would cause errors in the MRI measurements based on the teaching in Laskaris.

In contrast, the present inventors have realized that all sites containing an MRI system are subject to some kind of environmental disturbance, such as from electrical or mechanical equipment installed within the same building. The environmental disturbances or vibrations excite the MRI system magnets through the MRI system's attachment to the building, such as through the floor, walls or ceiling of a room of a building containing the MRI system. The most significant such attachment is the foot support, which is fastened to the floor to secure the magnets of the MRI system. The foot support transmits the environmental disturbances and vibrations to the magnets of the MRI system, thus degrading

the image quality. This is discussed in paragraph [0012] of the present application.

Thus, the present application teaches to proceed contrary to the accepted wisdom in the art. The claimed invention is directed to using a vibration isolation system with a magnet assembly, while the accepted MRI magnet assembly is rigidly mounted to the floor in the prior art. Proceeding contrary to the accepted wisdom in the art is evidence of non-obviousness. MPEP § 2145(X)D(3).

B. <u>There Is No Motivation To Combine Laskaris and Kim</u>

The Office Action states that it would have been obvious to use a vibration isolation system for the support structure of Laskaris as suggested by Kim for the purpose of reducing vibration. Applicants respectfully disagree.

Kim does not provide motivation to add a vibration isolation system to a magnet assembly. Kim teaches a vibration isolation system for a compressor. Kim provides no teaching or suggestion that a vibration isolation system would be useful as a support for an MRI magnet assembly. The compressor of Kim vibrates and produces noise. The vibration isolation system of Kim is used to reduce the vibration and noise <u>from the compressor to the environment</u> (see abstract and Col. 1, lines 43-49 of Kim). In contrast, transmission of vibration and noise from the MRI to the environment is not a concern in the MRI of Laskaris. Instead, Laskaris is concerned with limiting the vibration of the MRI magnet assembly itself due to the presence of a cryocooler coldhead (see col. 2, lines 1-5 and col. 2, line 65 to col. 3, line 17 of Laskaris). Thus, there is no motivation to combine Laskaris and Kim, since reduction of vibration from the MRI to the environment is not a concern in Laskaris.

Furthermore, if the MRI magnet assembly of Laskaris was modified as suggested in the Office Action, then this would change the principle of operation

of the MRI magnet assembly of Laskaris. Such a modification is impermissible according to the last subsection of MPEP § 2143.01. There are different ways to reduce vibration. One way is to ensure that the machine is rigidly mounted to the floor, as taught by Laskaris. The vibration of the MRI magnet assembly of Laskaris is reduced based on this principle of operation (see col. 2, lines 55-65 of Laskaris). In contrast, the claimed invention is based on the opposite principle of reducing magnet assembly vibration by using a vibration isolation system. There is no motivation to modify the MRI system of Laskaris as suggested by the Office Action because it would change the principle of operation of the MRI system of Laskaris.

C. **Kim Is Non-Analogous Art**

According to MPEP § 2145(IX), a prior art reference is non-analogous art if the prior art reference is not in the field of the applicants' endeavor and if it is not pertinent to the problem with which the applicants are concerned. Kim is non-analogous art because it meets both prongs of this test.

First, Kim is directed to a compressor assembly, while the claimed invention is directed to an MRI system. Thus, Kim is clearly not in the field of applicants' endeavor. Second, Kim is concerned with preventing the compressor from vibrating the adjacent support plate. Thus, Kim is concerned with preventing the transfer of the vibration from the compressor to the environment. In contrast, the claimed invention is concerned with preventing the transfer of vibration from the environment to the MRI system. Thus, the claimed invention solves the opposite problem that Kim is trying to solve. Therefore, Kim is non-analogous art and is cannot be properly used in a §103(a) rejection of the claims of the present application.

D. **The Rejection Of Dependent Claims Should Be Withdrawn**

Claims 10, 11 and 21 recite that the vibration isolation system is retrofitted to a preexisting MRI system. Neither Laskaris nor Kim teach to retrofit an existing system. The Office Action states that the use of the isolation system as a retrofit is an obvious design consideration to reduce cost. Applicants respectfully disagree. First, the applied prior art does not provide any motivation to reduce cost by using the system as a retrofit. Second, the use of the isolation system as a retrofit is not a design consideration, since it is not related to an aesthetic design. See MPEP § 2144.04(I). Furthermore, neither prior art reference teaches the posts recited in claims 11 and 21.

Claims 2-4, 12-13, 15-17 and 22 were rejected under §103(a) over Laskaris and Kim and further in view of Ohsaki. Claims 5-6 and 18 were rejected under §103(a) over Laskaris and Kim and further in view of Braun. These rejections are respectfully traversed.

Ohsaki is directed to a photolithography exposure apparatus. Ohsaki provides no motivation for providing a vibration isolation system for an MRI system, such as the system of Laskaris. Thus, there is no motivation to combine Laskaris and Ohsaki.

Furthermore, claims 2-4, 12-13, 15-17 and 22 were rejected over Laskaris, which teaches an MRI system, in view of Kim, which teaches a compressor, in view of Ohsaki, which teaches an exposure apparatus. Applicants submit that this combination is based on an improper hindsight reconstruction gained solely from the applicants' disclosure. One of ordinary skill in the art would not be motivated to combine these three unrelated references from different fields of endeavor without relying on the knowledge gained from the applicants' disclosure. See MPEP 2145(X)A.

Braun is directed to a vibration isolation system that is used in engines, pumps and helicopters (col. 1, lines 14-20). Braun provides no motivation for providing a vibration isolation system for an MRI system, such as the system of Laskaris. Thus, there is no motivation to combine Laskaris and Braun.

Furthermore, claims 5-6 and 18 were rejected over Laskaris, which teaches an MRI system, in view of Kim, which teaches a compressor, in view of Braun which teaches a vibration isolation system that is used in engines, pumps and helicopters. Applicants submit that this combination is also based on an improper hindsight reconstruction gained solely from the applicants' disclosure. One of ordinary skill in the art would not be motivated to combine these three unrelated references from different fields of endeavor without relying on the knowledge gained from the applicants' disclosure. See MPEP 2145(X)A.

III. Conclusion

Applicant believes that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested. The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

Respectfully submitted,

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Should additional fees be necessary in connection with the filing of this paper, or if a petition for extension of time is required for timely acceptance of same, the Commissioner is hereby authorized to charge Deposit Account No. 19-0741 for any such fees; and applicant(s) hereby petition for any needed extension of time.

Marked Up Version of Amended Claims
Showing Changes Made

14. (Amended) An open MRI system comprising:

(a) a first assembly comprising:

(1) a longitudinally-extending and generally-vertically-aligned first axis;

(2) at least one superconductive main coil positioned around said first axis and carrying a first main electric current in a first direction; and

(3) a first vacuum enclosure enclosing said at least one superconductive main coil of said first assembly;

(b) a second assembly longitudinally spaced apart from and disposed below said first assembly, comprising:

(1) a longitudinally-extending second axis generally coaxially aligned with said first axis;

(2) at least one superconductive main coil positioned around said second axis and carrying a second main electric current in said first direction; and

(3) a second vacuum enclosure enclosing said at least one superconductive main coil of second assembly;

(c) at least one support beam external to said first and second vacuum <u>enclosures</u> [enclosure] having a first end attached to said first assembly and having a second end attached to said second assembly; and

(d) a vibration isolation system.